

transmitting a first portion of the upstream data on a first upstream channel from the cable modem; and

transmitting a second portion of the upstream data on a second upstream channel from the cable modem, the second upstream channel differing from the first upstream channel,

wherein the first upstream channel and the second upstream channel were assigned within a downstream channel received into the cable modem.

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2. (Amended Once) A method as recited in claim 1, further comprising:

obtaining the first upstream channel from information in the downstream channel input to the cable modem; and

obtaining the second upstream channel from the information in the downstream channel input to the cable modem.

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11. (Amended Once) A cable modem comprising:

a processor configured to initiate transmission on multiple upstream channels; and

an upstream transmitting component operating in conjunction with the processor and configurable by the processor to transmit data over multiple upstream channels, wherein the multiple upstream channels are assigned within a downstream channel received into the cable modem.

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12. (Amended Once) A cable modem as recited in claim 11, wherein the upstream transmitting component includes a first transmitter that is capable of being configured by the processor to transmit data at a first upstream channel and a second transmitter that is capable of being configured by the processor to transmit at a second upstream channel that differs from the first upstream channel if the second upstream channel is available.

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19. (Amended Once) A head end for receiving upstream data from a cable modem, comprising a splitter that receives an upstream signal from the cable modem, the upstream signal including a first portion of the upstream data on a first upstream channel and a second portion of

the upstream data on a second upstream channel that differs from the first upstream channel, the splitter being arranged to separate the first portion of the upstream data transmitted over the first upstream channel from the second portion of the upstream data transmitted over the second upstream channel for further processing of the separated data, wherein the head end is further operable to assign the first upstream channel and the second upstream channel to the cable modem.

20. (Amended Once) A method of transmitting upstream data from a cable modem over multiple upstream channels within a cable television plant, the method comprising:

receiving a downstream signal within a downstream channel into the cable modem, wherein the downstream signal specifies an assignment of a first upstream channel and a second upstream channel;

configuring the cable modem to transmit over the first upstream channel if the first upstream channel is represented by information within a downstream channel; and

configuring the cable modem to transmit over the second upstream channel if the second upstream channel differs from the first upstream channel.

21. (Amended Once) A method as recited in claim 20, further comprising:

determining whether the cable modem is authorized to transmit over multiple upstream channels prior to configuring the cable modem to transmit over the second upstream channel; and

configuring the cable modem with the second upstream channel only when the cable modem is authorized to transmit over multiple upstream channels.

22. (Amended Once) A method as recited in claim 21, further comprising:

transmitting over a single channel if the cable modem is set up only to transmit over the first upstream channel; and

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transmitting over both the first and second upstream channels if the cable modem is set up to transmit over both the first and second upstream channels.

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35. (Amended Once) A cable modem comprising:

a first media access controller associated with a first memory portion into which data is written for transmission upstream from the cable modem;

a second media access controller associated with a second memory portion into which data is written for transmission upstream from the cable modem;

a first transmitter coupled with the first media access controller;

a second transmitter coupled with the second media access controller; and

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a processor configured to receive a downstream signal within a downstream channel into the cable modem, wherein the downstream signal specifies an assignment of a first upstream channel and a second upstream channel, configure the first transmitter to transmit data over the first upstream channel, configure the second transmitter to transmit data over the second upstream channel that differs from the first upstream channel if the second upstream channel is available, initiate transmission of a first data portion over the first upstream channel by writing to the first memory portion of the first media access controller and initiate transmission of a second data portion over the second upstream channel by writing to the second memory portion of the second media access controller.

36. (Amended Once) A computer readable medium containing programming instruction for transmitting data from a cable modem within a cable television plant, the computer readable medium comprising:

computer readable code for transmitting a first portion of the upstream data on a first upstream channel from the cable modem; and

computer readable code for transmitting a second portion of the upstream data on a second upstream channel from the cable modem, the second upstream channel differing from the first upstream channel,

wherein the first upstream channel and the second upstream channel were assigned within a downstream channel received into the cable modem.

37. (Amended Once) A computer readable medium containing programming instructions for transmitting upstream data from a cable modem over multiple upstream channels within a cable television plant, the computer readable medium comprising:

computer readable code for receiving a downstream signal within a downstream channel into the cable modem, wherein the downstream signal specifies an assignment of a first upstream channel and a second upstream channel;

computer readable code for configuring the cable modem to transmit over a first upstream channel if the first upstream channel is represented by information within a downstream channel; and

computer readable code for configuring the cable modem to transmit over a second upstream channel if the second upstream channel is represented by information within the downstream channel and if the second upstream channel differs from the first upstream channel.

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